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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,650	02/12/2001	Jonathan Highton Stott	48357-DIV (70305)	8980

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EDWARDS & ANGELL, LLP
P.O. BOX 55874
BOSTON, MA 02205

EXAMINER	
PENDLETON, BRIAN T	
ART UNIT	**PAPER NUMBER**
2644	8

DATE MAILED: 04/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/781,650	STOTT ET AL.	
	Examiner	Art Unit	
	Brian T. Pendleton	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *1-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 29 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for having an integrator 90 coupled to the results of the multipliers 82 in figure 8, does not reasonably provide enablement for an integrator coupled to accumulating means. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Accumulators are not described in the specification. Examiner is determining the merits of claims 27 and 29 with the assumption that the "means for selecting and accumulating the resultants of the multiplication" are the integrators 90 since that is the only circuit element which can perform an accumulating function and is coupled to the multipliers. With that assumption, there can be no further integrating means coupled to the output of the selecting and accumulating means in claim 29.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 21-28 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (APA) in view of Goodings. On page 4 of the specification, the Applicant teaches a prior art system for feedback reduction in a RF rebroadcast transceiver. The RF transceiver is shown in figure 6. Inherently, the RF rebroadcast transceiver has an input antenna before the down converter 304 for receiving an RF input signal and an output antenna after the up converter for transmitting an RF signal on substantially the same frequency as the input signal. Figure 6 also illustrates a amplification path between the input and output antenna having a delay 314 and having linear processing, as defined by the Applicant. The transceiver in figure 6 does not have means responsive to the signal in the amplification path for producing control coefficients, a transversal filter receiving said signal in the amplification path and controlled by the control coefficients to provide a modified signal and a combiner for combining the modified signal with the signal in the amplification path. However, those features are well known in the art of feedback reduction, as evidenced by Goodings et al. Goodings et al taught an acoustic feedback system in figure 1 comprising an amplification path, correlator 31 as a means responsive to the signal in the amplification path for producing a plurality of coefficients h_m, a transversal filter 27 for receiving the signal in the amplification path and controlled by the coefficients h_m providing a modified signal **m**, and a combiner 23 for combining the modified signal **m** with the signal in the amplification path. The advantage of using the

circuitry of Goodings et al was that it provided a method of adaptively canceling feedback signals. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the circuitry in the APA of figure 6. Claim 21 is met. A noise signal 33 is used in the feedback reduction scheme of Goodings et al. The noise signal 33 has an auto-correlation function (column 7 line 29 – column 8 line 28). A delta function for a signal is defined by the Applicant as a signal which is uncorrelated with itself. The noise signal 33 has a substantially delta function since it is a pseudo-random bit sequence. Correlator 31 correlates the signal 57, which is the signal before being delayed, with the noise signal 33 after being delayed with delay 37. Claim 22 is met. Regarding claim 23, the correlator correlates the signal before the delay 57 with the noise signal 33. As to claim 24, the combiner 23 combines the modified signal **m** with the signal **c** in the amplification path, the signal **c** situated before the delay 29. Per claim 25, the amplification path includes amplifier 7 which has variable gain (see figure 4). Regarding claim 26, it would have been obvious to increase the gain of the variable gain amplifier as the feedback is reduced. The reduction of a feedback component demonstrates the fact that the input is not picking up the signals from the output. Therefore, the input signals can be increased in gain since their radiation is not significantly contributing to the feedback loop. As to claim 27, Goodings et al teach in figure 2 that the correlator has multipliers 55 for multiplying a signal **d** before the delay and the incrementally delayed versions of the noise signal **n**. The results of the multiplication are accumulated by accumulators 59 for producing a plurality of correlation coefficients. The accumulators 59 hold the values for the transversal filter

27. Per claim 28, the APA discloses that the RF rebroadcast apparatus operates on complex signals when using the down and up converters, therefore the multiplication is a complex multiplication. Per claim 30, it would have been obvious to one of ordinary skill in the art at the time of invention to reduce the delay as feedback is reduced. Feedback occurs because the input receives the signals from the output. Delaying the output signals reduces the gain of the feedback loop. Therefore as the feedback is reduced, the system can tolerate a reduced delay in the amplification signal path. As to claim 31, Examiner takes Official Notice that it was obvious at the time of invention to control broadcast receivers with remote control devices.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Williamson et al, US Patent 5,091,952.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (703) 305-9509. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Brian Tyrone Pendleton
March 20, 2004

MINSUN OH HARVEY
PRIMARY EXAMINER